WESTERN RESOURCE
ADVOCATES

Protecting the Interior West's Land, Air, and Water

April 25, 2007

Members of the Resource Development
Coordinating Committee
5110 State Office Building
Salt Lake City, Utah 84114

Dave Grierson
Sovereign Lands Coordinator
Division of Forestry, Fire & State Lands
1594 West North Temple, Suite 3520
Salt Lake City, Utah 84116-3154

Re: Comments on Nomination of 23,088 Acres in Clyman Bay **and** on Proposed Development of 8,000 Acres in Bear River Bay for Mineral Salts Extraction.

Dear RDCC Members and Mr. Grierson,

I write these comments on behalf of the Audubon Council of Utah – including the four local societies of Bridgerland Audubon, Great Salt Lake Audubon, Red Cliffs Audubon and Wasatch Audubon; FRIENDS of Great Salt Lake; League of Women Voters of Salt Lake; National Audubon Society; The Nature Conservancy of Utah; Utah Airboat Association; Utah Rivers Council and, Utah Waterfowl Association. The purpose of these comments is two-fold. First, we urge you to reject the nomination of 23,088 acres in Great Salt Lake, near Clyman Bay for mineral salts leasing and conversion to diked evaporation ponds until sufficient information has been acquired and analyzed. We recommend this action because the Division of Forestry, Fire & State Lands ("Division") and the Resource Development Coordinating Committee ("RDCC") currently lack the information necessary to determine the potential impacts of this diking project on public trust values. Because this expansive diking and conversion proposal is almost certain to impair the navigation, wildlife habitat, aquatic beauty, public recreation, and water quality in Great Salt Lake, the State of Utah must analyze and understand the impacts of the diking proposal before allowing leasing to proceed. This is particularly true because the Clyman Bay expansion is inextricably linked to a larger expansion project which includes development of 8,000 acres in Bear River Bay, which has been identified by the Division of Wildlife Resources as particularly important habitat for water birds.

Exhibit E – 1a

Colorado Office • 2260 Baseline Road, Suite 200 • Boulder, CO 80302 • 303-444-1188 • Fax: 303-786-8054 • E-mail: info@westernresources.org
Utah Office • 425 East 100 South • Salt Lake City, UT 84111 • 801-487-9911 • Fax: 801-486-4233 • E-mail: utah@westernresources.org
Nevada Office • 769 Basque Way, Suite 300 • Carson City, NV 89706 • 775-841-2400 • Fax: 866-223-8365

www.westernresourceadvocates.org

The second purpose of these comments is to alert the Division and RDCC members to legal requirements and opportunities relative to existing leases for mineral salts extraction in Bear River Bay. Great Salt Lake Minerals has announced a comprehensive Potassium Sulfate Expansion Plan, which include converting 8,000 acres of this critically important wildlife area to essentially sterile evaporation ponds. This part of the expansion plan will also undoubtedly interfere with and substantially impair navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality – the statutorily designated public trust values. These Bear River Bay leases were issued in the mid-1960s and have not been subject to any environmental analysis or planning, much less any determination whether leasing and development of these lands is in keeping with the State of Utah's public trust responsibilities. Because these responsibilities must be met and public trust values must be protected, we point out various opportunities which will allow the Division particularly, and the State of Utah generally, to fulfill its public trust duties. We urge the Division and RDCC members to take advantage of these mechanisms so that they can comply with their obligation to safeguard the sovereign lands of Great Salt Lake.

To explain our position more fully we make the following points in detail below:

- First, we give a brief overview of the Great Salt Lake Mineral development proposal, establishing the magnitude of the plan to dike and convert 33,000 additional acres of the bed of Great Salt Lake into giant evaporation ponds, including the 23,088 acre proposal currently before the Division and RDCC. We also point out that the 23,088 proposal is inseparably connected to the proposal to expand development in the Bear River Bay by 8,000 acres.
- Second, we set forth the Division's legal responsibilities in managing Great Salt Lake – both its public trust responsibilities and its site-specific planning obligations that are implicated by this nomination.
- Third, we point out that, while the Division may be ultimately responsible for managing Great Salt Lake in keeping with the public trust, the public trust obligation applies to all relevant agencies of the State of Utah, including the Division of Wildlife Resources and the Division of Water Quality.
- Fourth, we examine current planning efforts relevant to Great Salt Lake and mineral development for the lake, noting that the planning documents:
    - do **not** undertake site-specific analysis, much less analysis sufficient to allow the Division and RDCC members to evaluate the nomination or fulfill their public trust obligations;
    - underscore that diking and conversion projects such as that proposed by Great Salt Lake Minerals promise to have significant adverse impacts on public trust resources – impacts that the documents did **not** then analyze; and,
    - are out-of-date and fail to address significant issues relevant to the fulfillment of the public trust obligation.
- Fifth, we underscore that the Great Salt Lake Minerals' proposed 33,000 acre expansion is designed to be a single, coordinated project, rather than two separate new operations. The expansion proposal itself describes how the 25,000 acre expansion on the west side of the lake will increase the concentration of brine transported to the East Ponds, where the proposed 8,000 acre expansion in Bear River Bay will increase the potassium harvest

from those ponds – and therefore that the west side expansion is inextricably connected to the expansion in Bear River Bay. We then list the many significant adverse impacts to Bear River Bay that are likely ensue as related consequences of the west side development.

- Sixth, we point out that even if the entire 33,000 acre proposal is subject to environmental review by the U.S. Army Corps of Engineers, it is incumbent upon the State of Utah to fulfill its public trust obligations. We therefore repeat the need for the Division and RDCC to:
  - collect and acquire sufficient analysis to set forth appropriate protective lease stipulations and restrictions prior to offering the 23,088 acres of sovereign lands for competitive leasing, or decide not to offer the lands for leasing if no stipulations could adequately protect the public trust resources; and,
  - with opportunity for public comment, collect and acquire additional information – prior to committing the State to allowing **any** development on the existing or proposed leases – of sufficient breadth and detail to allow the Division and RDCC to determine whether the proposed development will impair public trust resources.
- Seventh, we reiterate the significant value the Division of Wildlife Resources and others have ascribed to Bear River Bay and the particular areas slated for diking and conversion. We also repeat that, while the consensus is that development of these parcels threatens the public trust, no public trust analysis has been undertaken with regard to these parcels. We therefore point out opportunities that will allow compliance with public trust obligations in the context of the existing leases and existing planning documents.
- Eighth, we conclude by reiterating the need for the Division and the RDCC members to acquire and analyze the information they need to ensure that the entire proposed diking and conversion expansion will not harm the public trust values they are statutorily required to protect.

1. The Great Salt Lake Minerals Expansion Proposal

Currently, Great Salt Lake Minerals operates 43,000 acres of solar evaporation ponds on Great Salt Lake. According to the company, this includes 21,000 acres of salt ponds in Clyman Bay on the west side lake, a 21 mile long canal running along lake bottom from west to the east side of Great Salt Lake, and 22,000 acres of solar ponds in Bear River Bay on the east side of the lake.

To this existing 43,000 acre facility, Great Salt Lake Minerals plans to add significant additional facilities. On the west side, in Clyman Bay, the company proposes to build an additional 18,000 acre solar pond, and a new 7,000 acre pond, as well as a new feed canal into the lake and a new pump station powered by a diesel engine. The company maintains that it currently leases much of the land necessary to build this 7,000 acre pond and what it does not lease is presently leased by a private individual. It is an application to lease approximately 23,088 acres to facilitate this expansion of the west side of the lake that is now before the RDCC.

On the east side of the lake, in Bear River Bay, the company intends to build a new 8,000 acre solar pond. Great Salt Lake Minerals contends that it currently holds leases sufficient to construct this 8,000 acre pond in Bear River Bay.

In sum, Great Salt Lake Minerals seeks to expand its 43,000 acre operation by 25,000 acres[1] on the west side and 8,000 acres on the east side, for a total expansion of 33,000 acres, bringing the size of its operations to 76,000 acres or 119 square miles. This means that Great Salt Lake Minerals will have under development an area larger than Salt Lake City, which is 110 square miles – an area that takes up 13 percent of the total area of the lake when waters are low, and covers 7 percent of the lake when its levels are average. Because the existing and proposed development is concentrated in the north arm of the lake and it Bear River Bay, the impacts of the mining operations will be felt even more acutely in the part of the lake.

2. The Division's Legal Responsibilities

Public Trust Obligations

The bed of Great Salt Lake is comprised of sovereign lands. As such, the Utah Legislature has directed the Division to manage all uses of these lands in a way that "serve[s] the public interest and do[es] not interfere with the public trust." Utah Code Ann. § 65A-10-1; see also National Parks and Conservation Ass'n v. Board of State Lands, 869 P.2d 909, 919 (Utah 1993) ("the 'public trust' doctrine . . . protects the ecological integrity of the public lands and their public recreational uses for the benefit of the public at large") (citations omitted). Based on these principles, the Division has clarified that it must manage sovereign lands for the "protection of navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality. . . ." Utah Admin. Code R652-2-200. Indeed, the Division states, in reference to its obligation to Great Salt Lake specifically, that it is "clear that the purposes of the trust have primacy and that other uses must meet the criterion to avoid substantial impairment of public trust uses." Great Salt Lake Comprehensive Management Plan (CMP) at unnumbered 9(Conclusion/Action). Said another way, the Division concluded:

> [t]here is no question that the [D]ivision's implementation of the multiple-use sustained yield statute is subject to consistency with public trust obligations. All possible uses under a multiple-use framework are not necessarily protected uses under the Public Trust Doctrine. Any private uses of sovereign lands must yield to the criterion to avoid substantial impairment of protected public uses.

CMP at unnumbered 4.

Importantly, the Division's public trust obligations are mandatory. The Division is required to ensure any use of Great Salt Lake does not interfere with navigation, fish and wildlife

---

[1] According to Great Salt Lake Minerals, the total proposed expansion for the west side of the lake will cover 25,000 acres. However, 1,500 acres that is slated to be used for this development is already leased to a private entity. As a result, Great Salt Lake Minerals is nominating 23,088 additional acres for leasing in this area.

habitat, aquatic beauty, public recreation, and water quality on and in the lake. Moreover, protection of these values trumps any other use of sovereign lands and cannot be superseded in the name of economic development or payment to the State.

Planning Obligations

To help ensure that the Division manages Great Salt Lake according to its public trust responsibilities, the Division must undertake resource planning. For example, the Division's regulations state that "[s]ite-specific planning shall be initiated either by: (a) an application for a sovereign land use, or (b) the identification by the division of an opportunity for commercial gain in a specific area." Utah Admin. Code R652-90-300(2).

Site-specific planning entails, *inter alia*: "(a) a comparative evaluation of the commercial gain potential of the proposed use with competing or existing uses; (b) the effect of the proposed use on adjoining sovereign lands; (c) an evaluation of the proposed use or action with regard to natural and cultural resources, if appropriate; (d) the notification of, and **environmental analysis of**, the proposed use provided by the public, federal, state and municipal agencies through the Resource Development Coordinating Committee (RDCC) process; and, (e) and further notification and evaluations as required by applicable rules." Utah Admin. Code R652-90-400 (emphasis added).

In turn, the RDCC process "provides an environmental assessment for purposes of sovereign land management." Utah Admin. Code R652-90-1200. Importantly, "[t]he public may comment on proposed sovereign land uses through the RDCC and other public notification processes." Id. In addition, upon the completion of the site-specific planning process, the public "**shall**" be provided with the "Record of Decision or other document summarizing final division action and relevant facts document . . . ." Utah Admin. Code R652-90-600(3).

Finally, Rule R652-90-400(e) obligates the Division, as part of its site-specific planning, to undertake "evaluations as required by applicable rules." This means that, as part of its planning, the agency must complete the analysis required by Utah Admin. Code R652-2-200 ("all uses on, beneath, or above the beds of navigable lakes . . .[shall] be regulated, so that the protection of navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality will be given due consideration and balanced against the navigational or economic necessity or justification for, or benefit to be derived from, any proposed use"). This means that the Division must determine the supposed value of a proposed use as well as the cost to public trust resources that would result from that use. To determine if a use is appropriate, these harms and benefits must be balanced against the ultimate requirement that the proposed use cannot impair navigation, fish and wildlife habitat, aquatic beauty, public recreation, or water quality in the lake.

3. The Public Trust Obligations of the State of Utah

Although the Division may be ultimately responsible for safeguarding, under the public trust, sovereign lands, including the bed and waters of Great Salt Lake, the State of Utah and its agencies are likewise bound by the obligation to protect public trust values. Under Utah public trust law, the State has title to the lands under Great Salt Lake up to the ordinary high water mark. Utah Division of State Lands v. United States, 482 U.S. 193, 209 (1987). These sovereign lands are held in public trust under the Utah Constitution, art. XX, §1.[2] The State must protect the lands' "uses such as commerce, navigation, and fishing," Colman v. Utah State Land Board, 795 P.2d 622, 635 (Utah 1990), as well as their "ecological integrity" and "public recreational uses," National Parks and Conservation Ass'n v. Board of State Lands, 869 P.2d 909, 919 (Utah 1993).

Public trust lands cannot be sold or leased unless the State's sovereign ownership rights can be transferred without impairing the interests protected by the public trust. Colman, 795 P.2d at 635 (quoting Illinois Cent. R.R. Co. v. Illinois, 146 U.S. 387, 455-56 (1892)) ; see also Utah Code § 23-21-4(1) ("There is reserved to the public the right of access to all lands owned by the state, including those lands lying below the official government meander line or high water line of navigable waters, for the purpose of hunting, trapping, or fishing."). "Navigable waters should not be given without restriction to private parties and should be preserved for the general public." Colman, 795 P.2d at 635; *see also* Utah Code § 23-21-4(2) (mandating that the State retain public access rights as part of any lease or sale of public trust lands). Like the State, private parties must not frustrate the purposes of the public trust.

Thus, the Division is not alone in its duty to protect navigation, wildlife habitat, aquatic beauty, public recreation, and water quality in Great Salt Lake from any impairment, including the diking and conversion proposal slated to develop an additional 33,000 acres of the bed of the lake. RDCC member agencies, particularly the Division of Wildlife Resources and Division of Water Quality, must also apply their expertise and authority to protect public trust values.

4. Past Planning Efforts

The CMP and MLP are Not Site-Specific.

On March 1, 2000, the Division released its Great Salt Lake Comprehensive Management Plan and Decision Document (CMP). This and related documents, such as the May 1, 2000 CMP Resource Document, were subject to public notice and comment, and the opportunity for appeal. The CMP incorporated the June 27, 1996 Mineral Leasing Plan for Great Salt Lake (MLP) and made the decision to "open" portions of Great Salt Lake to Mineral Salts leasing and

---

[2] "All lands of the State that have been, or may hereafter be granted to the State by Congress, and all lands acquired by gift, grant or devise, from any person or corporation, or that may otherwise be acquired, are hereby accepted, and, except as provided in Section 2 of this Article, are declared to be the public lands of the State; and shall be held in trust for the people, to be disposed of as may be provided by law, for the respective purposes for which they have been or may be granted, donated, devised or otherwise acquired."

to prohibit leasing in other portions. CMP at Exhibit 4. Leases in these open areas contain no stipulations. Id. The proposed 23,088 acre Clyman Bay expansion appears to be proposed for areas designated as open. However, the Bear River Bay expansion – apparently already leased by Great Salt Lake Minerals – is proposed for an area closed to Mineral Salts leasing.

Neither the CMP, the CMP Resource Document, nor the MLP is a site-specific planning document. None of these documents anticipates the diking of 33,000 acres of additional lands in the bed of the northwest arm of Great Salt Lake or determines the impacts the diking of these lands will have on navigation, wildlife habitat, aquatic beauty, public recreation, and water quality. I.e. see CMP at 18 ("Much of the lake is classified as open for consideration of any use, **but developments in open areas are not expected**") (emphasis added); id. ("While **little development** on the west shore is expected, it is available for development uses.") (emphasis added). None of these documents quantifies the supposed benefit that would derive from the leasing or development of land in the bed of Great Salt Lake.

The MLP states that currently there are 171,644 acres of the bed of Great Salt Lake under lease for mineral salts extraction. MLP at 20. The plan does not clarify whether all of these areas are currently developed and diked. The MLP concludes that:

> Mineral operations can have significant impacts (some adverse, some neutral, some possibly enhancing the lake's ecosystem) . . . through diking projects, pollution, depletion of salts in the lake, disturbance of bird populations, and other activities. The impact of mineral operations is not systematically documented nor are parameters or indicators set up which would signal if and when and to what degree a change in leasing and regulatory policies or direction might be necessary.

MLP at 41.

At the same time, echoing the "environmental analysis" obligation in Utah Admin. Code R652-90-400(d), the CMP anticipates that site-specific planning will occur before action is taken on applications to lease areas of the bed of Great Salt Lake for mineral salts development. Specifically, in response to concerns about opening the northwest portions of the lake to mineral leasing, and the need to consider additional public input on this decision, the Division promises the opportunity for public comment not only relative to the CMP, but also "through the RDCC, which is the state clearinghouse for all proposed state **actions** relating to natural resources." CMP at 79.

Moreover, in response to concerns about a failure to "consider geological hazards in **all** sovereign land use **decisions**," the Division states in the CMP that it "will follow up by requiring a site-specific analysis of potential hazards and consulting with UGS regarding the adequacy of proposed mitigation." CMP at 18. The Division also states, in response to concerns that it "downplayed" the "importance of western and northern lake and shoreline habitats to wildlife resources," not only that this habitat is "important," and that the Division's "intent is to protect wildlife and habitats wherever they occur," but also that habitat and wildlife that does occur on the west and north end of the lake "is important and will receive due consideration." CMP at 73. Indeed, the Division acknowledges that "[m]ore research and monitoring . . . will be needed in

the future to understand and properly manage and conserve the lake." CMP at 75. Similarly, the Division states plainly that "[a]s site-specific planning is conducted in response to applications submitted that affect the development areas, alternative A for issue 5.1[3] will be taken into account." CMP at unnumbered 6 (issue 6.1); see also id. at unnumbered 7 (stating with regard to "mineral lease zones" that "[a]ction taken by Wildlife Board under alternative A in issues 5.1 and 6.1, and site-specific planning may lead to revisions of the MLP"); CMP at 19 (stating that the nomination process for mineral leases "works well for identifying special concerns, determining lease stipulations in response to those concerns, and making the stipulations known at the time the lease is offered for competitive bid").

The CMP Identifies, but Does Not Analyze Threats Posed by Diking and Mineral Salts Extraction.

While they are not detailed and not site-specific, the CMP and related documents plainly identify issues specifically acknowledged in connection with development, such as the 23,088 area diking and conversion proposal, that must be evaluated pursuant to any adequate analysis.

The MLP first emphasizes that dikes and diversions threaten public trust values, stating that "[a] recurrent theme is that placement of dikes and diversions can have significant and rapid impacts on various conditions in the lake." MLP at 10. The MLP then explicitly states:

> At the time of proposed development, examine the need and/or alternatives for dikes and other structures . . . to accommodate all affected resources – economic development, water level management, wildlife, navigability and other issues.

MLP at 45. Importantly, the plan also dictates that the Division will "**[e]valuate opportunities for trading existing leases with significant resource conflicts for the right to lease in areas with less conflict.**" MLP at 45. Thus, the MLP requires, at a minimum, an examination of the environmental impacts from diking and an evaluation of opportunities to exchange leased parcels in sensitive areas.

The CMP is more detailed. It repeated the concerns that diking proposals have significant detrimental effect on Great Salt Lake trust values and that the impact of any diking proposal must be understood before determining if it can proceed. In the Decision Document itself, the Great Salt Lake Planning Team and Utah Department of Natural Resources stated:

> Much of the public comment reflected a desire for a blanket ban on new dikes. There is no question about the adverse affects of some dikes, but other dikes serve public purposes as well as public uses protected under the Public Trust Doctrine. A blanket ban is inappropriate, but better evaluation of diking proposals is needed than has occurred in the past.

---

[3] Issue 5.1 – Biology – states, in part, that "[in] light of adverse impacts to wildlife that have occurred from other management activity on [Great Salt Lake], it is important that our understanding of wildlife functions in the ecosystem improves, and that wildlife values be better protected." CMP unnumbered 6.

CMP at unnumbered 7; see also CMP at 78 ("The general effect of dikes on lake dynamics is acknowledged. The policy will require a more specific assessment. Blanket denial of diking proposals is not appropriate because it would preclude construction of dikes in [Wildlife Management Areas], the sovereign land portion of [Bear River Migratory Bird Refuge], and existing mineral leases. Diking proposals in these areas will be subject to the policy."); CMP at 19 ("6.4 GSL diking policy. Given the increased appreciation for habitat-related beneficial effects of fluctuating lake levels, the objective is to ensure that on-site and off-site impacts will be taken into account when diking activity is planned.").

To implement this requirement for assessment of diking projects, the CMP states that the Division and the Division of Wildlife Resources will be lead agencies and "**will**" take the action to "require assessments" within the time frame of "plan implementation." CMP at 32.

The CMP also specifies that new information must be incorporated into planning efforts at the site-specific level in order to guide management in a way that adequately protects public trust resources. For example, the Division notes that in order to "protect the viewshed or the visual aesthetics of" Great Salt Lake it must develop a visual resource management plan. CMP at 23. The Division also notes that the "highest priority for accomplishing the goals and objectives of the" CMP and the "most critical information for lake managers at this time" is the need to collect data on the "volumes and concentrations of waterborne nutrients and heavy metals entering" Great Salt Lake. CMP at 40; see also CMP at 18 ("DNR believes that a greater effort is needed to understand the wildlife functions within the ecosystem and manage to protect the existing values, mitigate the losses when practicable, and extend greater protection than has occurred historically").

The CMP also identifies, but does not analyze, potential serious adverse impacts that could result from west shore projects such as the proposed diking of 23,088 acres of the bed of Great Salt Lake based on currently imposed stipulations. For example, in the CMP, the Division notes that there are extremely "sensitive ecological interests" in the north arm that are currently "buffered by the reduced access." CMP at 20. The islands there provide "critical habitat and nesting grounds for American white pelicans and other shorebirds." Id. However, "even minimal human presence has [been] shown to disrupt" the birds using the north arm "to the point that they move off the island to less productive habitat." Id. Moreover, the Division states while "[m]ineral operations can have significant impacts," that "[t]he impact of mineral operations is not systematically documented nor are parameters or indicators set up which would signal if and when and to what degree a change in leasing and regulatory policies or direction might be necessary." MLP at 41.

The CMP Fails to Consider New Information and Fails to Analyze Significant Likely Impairments to the Public Trust

New information

Since the CMP was finalized, significant new information regarding Great Salt Lake and its public trust resources has come to light. For example, federal scientists have discovered alarmingly high levels of methlymercury in the water of Great Salt Lake. These levels represent some of the highest levels of this toxin ever discovered by the U.S. Geological Survey (USGS).

Toxic levels of mercury have also been found in Great Salt Lake waterfowl, such as northern shovelers and common goldeneyes, in such high concentrations that the Division of Wildlife Resources warned the public not to shoot or consume waterfowl from these two species. In addition, possible selenium contamination in the lake has prompted state and federal agencies, along with the public, to begin the extensive process of determining a lake-specific numeric water quality standard for this pollutant. At the same time, another USGS study has shown high levels of contaminants in the bed of the lake.[4] These discoveries sound an alarm about water quality, casting serious doubt on the assumption that areas of the lake's deep brine layer will hold contaminants and keep them inert, and suggesting that disturbing lake sediments could be significantly detrimental to water quality.

Significant information relating to public trust values not analyzed

There is also significant information directly relevant to protection of the public trust values that has never been analyzed either generally as part of a mineral leasing program or on a site-specific level. In other words, information concerning a myriad of issues does not appear in the CMP and related documents, or in any other report, study or planning record. This means that, to ensure the protection of navigation, wildlife habitat, aquatic beauty, public recreation, and water quality, this information must gathered and analyzed prior to any determination of whether the diking and conversion proposal violates the public trust.

As a general matter, there appears to be no information, studies, data or analysis quantifying the impacts that the construction and operation of the existing Great Salt Lake Minerals facilities have on public trust values. Indeed, according to the MLP, there are currently ten producing mineral leases totaling 171,644 acres operating within Great Salt Lake. MLP at 20. Like the Great Salt Lake Minerals expansion proposal, these operations involve diking and conversion of a functioning ecosystem into solar evaporation ponds and similar facilities. Yet, as the MLP admits, while "[m]ineral operations can have significant impacts," that "[t]he impact of mineral operations is not systematically documented nor are parameters or indicators set up which would signal if and when and to what degree a change in leasing and regulatory policies or direction might be necessary." MLP at 41.

Plainly, without this baseline data – without knowing if current mineral leasing is adversely impacting public trust resources – the Division is not in a position to evaluate whether expansion of these operations will negatively affect navigation, wildlife habitat, aquatic beauty, public recreation, and water quality. Moreover, given the sheer magnitude of current operations and the proposed expansion, it is almost certain that cumulatively, these diking and conversion operations are significantly impairing the public trust. This is particularly true given that, once developed, the expansion parcels are likely to remain diked and converted indefinitely, meaning that adverse impacts to public trust values will extend into the foreseeable future and will certainly have cumulative impacts over time.

---

[4] Reconstructing Historical Changes in the Environmental Health of Watershed by Using Sediment Cores from Lakes and Reservoirs in Salt Lake Valley, Utah (December 2000).

Specifically, the following is a list of issues relevant to the individual and cumulative impacts and impairments that will almost certainly result from the proposed diking and conversion expansion:

- Likely impacts to **navigation, public access and public recreation**:
    - Increased diking and conversion will further limit navigation of and public access to the shoreline, as well as previously open waters of Great Salt Lake. This will in turn limit the ability of the public to recreate freely on the lake and will concentrate the public's use in a smaller area. This in turn will adversely impact navigation and recreation in these remaining smaller areas.
    - To the extent increased diking and conversion will adversely affect water birds and wildlife, as well as scenic values, public recreation that depends upon these values will be adversely impacted.
    - Impacts to navigation and public access will be exacerbated by low water as lake volume decreases and the shoreline shrinks.
    - Increased diking and conversion will further impede navigation and access from one part of the lake to the other – access which is already significantly impaired by existing diking and conversion.

- Likely impacts on **wildlife habitat**:
    - Increased diking and conversion will further concentrate usage in non-developed areas, thereby impacting wildlife habitat in these areas.
    - Gunnison Island, located close to the 25,000 acre expansion proposal, hosts one of the largest breeding colonies for American white pelicans in North America. Gunnison Island is now the only nesting location for American White Pelicans in Utah. Currently, Great Salt Lake Mineral dikes come within approximately four and one half miles of Gunnison Island. The expansion proposal would place dikes as close as two and one half miles of the island. It is necessary to understand what steps are required to ensure that the American white pelicans can continue to nest at Gunnison Island – yet no analysis has been undertaken. For example, particularly at lower lake levels, predators could take advantage of this diking to access breeding sites such as Gunnison Island. Dikes would also increase potential human disturbances such as noise, lighting, and land vibrations. Considerable caution is needed to secure the island for the pelicans in the future.
    - The proposed expansion has the potential to impact adversely other bird life. There has been no analysis of the impact of development on the eared grebe and other birds that depend upon the north arm during periods of flood, estimated by the Division to be approximately 10% of the time. In high precipitation years, as fresh water decreases salinity in the north and south arms, brine shrimp production in the north arm will exceed that in the south arm, and birds such as the eared grebe, Wilson's phalaropes and red-necked phalaropes will necessarily rely on the ecosystem of the north arm. The same may also be true for waterfowl. By the same token, diking and conversion to evaporation ponds will be in place for several decades. Within that time frame, the causeway could be breached or

actions taken to better circulate the lake's waters. Again, the north arm could become even more important to birds such as the eared grebe.

- As the proposed 25,000 acre expansion would also dike off about seven miles of shoreline on the western side of Gunnison Bay, it may adversely impact birds such as the snowy plover. Bird use in this area is largely unknown, but may well be important. The potential impacts to bird life and other flora and fauna in this area should be fully explored.
- Any impact to wildlife habitat caused by increased diking and conversion is likely to be exacerbated by low water conditions.
- Adverse impacts to water quality and decreases in water quantity will adversely effect wildlife and wildlife habitat.

■ Likely impacts on **aquatic beauty:**

- Diking and conversion modify a natural setting, making it an industrialized site. Thus, the impact of the proposed expansion on the aquatic beauty of Great Salt Lake is extensive. Cumulatively, this impact is even more significant, as a significant portion of the lake is currently developed.

■ Likely impacts on **water quality, water movement and water quantity:**

- Diking and conversion impacts water quality because it interferes with the natural ebb and flow of the lake, as well as the mixing of the lake's waters. The proposed development would enclose 25,000 acres of water, as well as dike off about seven miles of shoreline on the western side of Gunnison Bay. The effects of this expanded development on water quality, together with the effects of current development, are almost certainly significant.
- Mineral salts extraction changes the chemistry of the waters of Great Salt Lake, at the very least, on a local level. These changes – including the effects of increased concentrations of some minerals and decreased concentrations of others – and the impacts these changes may have on the biota of the lake have never been analyzed. Changes to water chemistry, both due to current mineral extraction and due to the impacts of increased extraction should be addressed, particularly as these changes impact algae, brine shrimp and water birds. In addition, more salts are extracted from the lake every year than are added by river inflows; therefore, the long-term extraction of minerals – which is likely to change the chemistry and ultimately the characters of the lake – should be evaluated.
- Diking and the operation of solar evaporation ponds will increase evaporation from the lake with unknown impacts to water availability, water quality, wildlife habitat, wetlands and mud flats.
- The expansion proposal will greatly increase the ongoing shift of minerals between Gunnison Bay and Bear River Bay, and also possibly Gilbert Bay. A full understanding of these possible shifts in minerals and their impacts to the various bays should be developed, including whether the movement of water and minerals could concentrate mercury or selenium in the receiving waters or in the waters

from which the minerals and water are being removed. These effects should be quantified and analyzed.

- Drought and low water will further exacerbate the water quality impacts of current and proposed operations. In addition, as the population of the Wasatch Front increases, there will be more demand for fresh water, likely resulting in less water reaching Great Salt Lake.
- Construction of the dikes will disturb lake bed sediments and stir up contaminants. In addition, the use of motors, motorized vehicles and other equipment as a result of the development could adversely impact water quality.
- Pumps, underwater canals, water intake points and discharge points all impact water quality, individually and cumulatively. Flushing of solar ponds impacts water quality by forcing into specific parts of the lake waters containing a high concentration of unspecified minerals.
- Removal of extremely high volumes of water from the open waters of the lake and sequestering them in largely sterile evaporation ponds affects water quality and quantity available to the Great Salt Lake ecosystem. Moreover, increased evaporation of waters from the lake which will result from the construction of ponds, will also impact these values. This loss of water could lower lake levels thereby further concentrating pollutants, further restricting natural water flows as well as public access.

- Likely **cumulative** impacts:

  - Of particularly concern are the cumulative impacts of the proposed expansion on all public resource values – navigation, wildlife habitat, aquatic beauty, public recreation and water quality. Factors such as increased storm water run off, increased recreation, and increased near-lake development all also have cumulative adverse impacts on public trust resources.
  - There are currently ten producing mineral leases totaling 171,644 acres operating within Great Salt Lake. Like the Great Salt Lake Minerals expansion proposal, these operations involve diking and conversion of a functioning ecosystem into solar evaporation ponds and similar facilities. In addition, areas of the bed of Great Salt Lake are currently leased for oil and gas development and there exists a keen interest in the leasing of tens of thousands of additional acres for oil and gas development. These activities will certainly have adverse cumulative adverse effects on public trust resources – impacts which have not been quantified or otherwise examined.

- Other considerations – **seismic activity**:

  - The lands being offered for lease lie just a few miles from the epicenter of the largest instrumentally recorded earthquake in Utah history, the Hansel Valley Magnitude 6.5 event of 1934. At the same time, the lease parcels lie adjacent to or above an even more dangerous fault – the Great Salt Lake fault – that runs submerged immediately west of Promontory Peninsula and "generates earthquakes up to at least Magnitude 7.0." Because the shaking and tsunami that

would accompany any rupture of these faults is capable of causing catastrophic failure of even earthquake-strengthened structures, there is the potential of serious damage to both on shore and off-shore facilities. The failure of these facilities would adversely impact public trust resources.

5. The Bear River Bay Expansion

As reiterated above, there appears to be no information, studies, data or analysis quantifying the impacts that the construction and operation of the existing Great Salt Lake Minerals facilities and other mineral salt extraction projects already have on public trust values. This includes the operation of 22,000 acres of evaporation ponds in sensitive Bear River Bay, a critically important habitat for waterbirds. The impacts of these east side operations will be increased because the Great Salt Lake Minerals' proposed 33,000 acre expansion is designed to be a single, coordinated project, which is dependant upon the 8,000 acre expansion in Bear River Bay. The expansion proposal itself describes how the 25,000 acre expansion on the west side of the lake will increase the concentration of brine transported to the East Ponds, where the proposed 8,000 acre expansion in Bear River Bay will increase the potassium harvest from those ponds – and therefore that the west side expansion is inextricably connected to the expansion in Bear River Bay.

Without any baseline data for existing impacts from the current operations of Great Salt Lake Minerals, including the development in Bear River Bay – and thus without knowing the extent to which current mineral leasing is adversely impacting public trust resources – the Division cannot be in a position to evaluate whether expansion of these operations will negatively affect navigation, wildlife habitat, aquatic beauty, public recreation, and water quality. However, given the sheer magnitude of current operations, and the proposed expansion to nearly double the amount of the lake surface substantially altered by these evaporation ponds, it is almost certain that – cumulatively – these diking and conversion operations are impairing the public trust resources.

Of course, because of the similarity of the west and east side expansion proposals, the likely impacts described above apply equally to the Bear River Bay expansion. Noting that some concerns listed below are similar to those above, the following are issues relevant to the individual and cumulative impacts and impairments that will almost certainly result from the proposed diking and conversion expansion, focusing particularly on the resulting impacts to Bear River Bay:

- Likely impacts to **all** public trust values:
    - When added to existing development in Bear River Bay – one of the most critical habitats for waterbirds on the Great Salt Lake – the proposed diking and conversion expansion would cover 30% of this critical ecosystem in dikes and largely sterile evaporation ponds. This is because currently, Great Salt Lake Mineral has diked and converted 22,000 acres of the bay. If this development is increased by 8,000 acres, 30,000 acres of the 100,416 acre bay will be diked, converted and developed, causing significant adverse impacts to the whole suite

of public trust values. It is impossible not to impair significantly public trust values, when 30% of one of the most critical areas of the lake is essentially taken out of the trust and converted into an industrial zone and deprived of each of the very qualities that make up the trust.

- Likely impacts on **navigation** and **public recreation:**

  - The 8,000 acre expansion proposal will, at times, cut off water flows and access to and from Bear River Bay. This will severely limit the ability of the public to recreate freely on the lake and will concentrate public use in a smaller area. This in turn will adversely impact navigation and recreation in these remaining smaller areas.
  - To the extent increased diking and conversion will adversely affect water birds and wildlife, as well as scenic values, public recreation that depends upon these values will be adversely impacted.
  - Impacts to navigation and public access will be exacerbated by low water as lake volume decreases and the shoreline shrinks.
  - Increased diking and conversion will further impede navigation and access from one part of the bay to the other – access which is already significantly impaired by existing diking and conversion.

- Likely impacts on **wildlife habitat**:

  - An August 28, 1998 letter from the Division and the Division of Wildlife Resources, as well as a predecessor to the current company, Great Salt Lake Minerals Corporation, regarding a decision to exchange leased lands in Bear River Bay states plainly that the State of Utah considers the areas subject to diking and conversion as significant wildlife habitat:

    > DWR [Division of Wildlife Resources] expressed interest in an exchange because the undiked areas of Bear River Bay have tremendous value to wildlife, specifically birds. Some of the values include: molting/brood rearing areas for Canada geese and ducks; a foraging area for fish eating birds such as pelicans, cormorants, western grebes, [and] great blues herons; [and a] horned grebe nesting colony.

    Memo from IMC Kalium Ogden Corp., Division of Wildlife Resources, Division of Forestry, Fire and State Lands to John Kimball, Director Division of Wildlife Resources and Arthur DuFault, Director Division of Forestry, Fire and State Lands, August 28, 1998 at page 2. A copy of this letter is attached to these comments. With regard to some of the particular parcels slated for diking and conversion, the agency stated:

    > DWR also identified lands of important wildlife value in Sections 16, 17 and 18, Township 7 North, Range 4 West. These lands were not included in the lease exchange but are valued by DWR for periods when lake level falls

below 4200' in Bear River Bay.[5] DWR is particularly interested in lands which are north and northwest of the existing dikes of IMC Kalium because of bulrush colonies in this area that are important to colony nesting birds and as forage for birds. Also, at lower lake levels, this is the low point of the channel and is important as an area where the water creates a natural "lake" within the bay. IMC Kalium values these same sections for possible pond expansion but believes that by increasing its pond size in Clyman Bay, these sections will probably never be needed. IMC Kalium, BWR and DFFSL [the Division] are, as a result, now aware of areas of concern or potential resource conflicts that might arise in the future.

Id. at 3. Plainly, DWR anticipates that diking and conversion of these areas of Bear River Bay will threaten public trust values. Indeed, these statements show that the proposed expansion will interfere with and significantly impair the public trust.

- Other statements echo that Bear River Bay is of critical importance to waterbirds. As the Department of Natural Resources has confirmed:

  Bear River Bay is the freshest region and receives the largest volume of riverine inflow. Its near-surface salinity is similar to that of the Bear River. This system is bounded on the north and east by state, federal, and private wetlands; on the south by industry; and to the west by the Promontory Mountains. This bay is fresh enough to support a community of submergent hydrophytes including sago pondweed (Potamogeton pectinatus) and widgeon grass (Ruppia maritima). There are significant islands of emergent wetlands here, especially in the east part of the bay in the Willard Spur. . . . An ecological element of vital importance to pisciverus birds in this area is the fishery that persists when the lake elevation is higher than 4,200 feet (1,280.2 m) above sea level. The avian community at Willard Spur is exceptionally complex. With its species richness, diversity and overall abundance, this area continually provides one of the most magnificent displays of bird life on the lake. Although the smallest region on the lake, it makes an exceptional contribution to the lake's avian population.[6]

  Because of the importance of this water body to wildlife habitat, particularly close examination of the impacts of the current and proposed expansion on ecosystem values must be undertaken.

- The Great Salt Lake Waterbird Survey, conducted from 1997 to 2001, confirms the conclusions reached by the Division of Wildlife Resources. This survey was undertaken in 12 different areas of the total Bear River Bay complex, including the Bear River Refuge, Public Shooting Grounds, and Bear River Club. The surveys occurred numerous times from early spring through fall during these five

---

[5] As of April 24, 2007, the level stood at 4197 feet. The level has been below 4198 feet for at least the last three years.

[6] *Avian Ecology of Great Salt Lake,* by Tom Aldrich and Don Paul from Great Salt Lake: An Overview of Change, edited by J. Wallace Gwynn, Ph.D., Special Publication of the Utah Department of Natural Resources, 2002.

years. The survey underscores the importance of Bear River Bay to waterbirds. A map of these survey areas is attached, along with some of the bird counts data.

- As noted above, Bear River Bay is of critical importance to Canada geese, huge numbers of which use the area of molting. The Utah Division of Wildlife Resources has conducted aerial surveys of Canada Geese in June in the open water of Bear River Bay since 1972. The highest count was 11,893 in 1998. The impacts to these molting geese due to an expansion of the mineral ponds in Bear River Bay are not known. What is of concern is the reduction in habitat and also the potential decrease in available wet areas, particularly in lower water years. This reduction in habitat could result due to direct loss to diked areas, as well as water quality impacts due to increased evaporation and reduced circulation.
- Increased diking and conversion will likely adversely impact wildlife and habitat due to noise and increased access of predators and humans across dikes.
- Any impact to wildlife habitat caused by increased diking and conversion is likely to be exacerbated by low water.
- Adverse impacts to water quality and decreases in water quantity will adversely affect wildlife and wildlife habitat.

- Likely impacts on **aquatic beauty:**

  - Diking and conversion change a natural setting into an industrialized setting. Thus, the impact of the proposed expansion on the aquatic beauty of Great Salt Lake is extensive. Cumulatively, this impact is even more significant, as a significant portion of the lake is currently developed. Moreover, Bear River Bay is closer to the more widely used east shore of the lake and experiences more use. As a result, the significant adverse impacts to aquatic beauty will be experienced by more people.

- Likely impacts on **water quality, water movement and water quantity:**

  - The proposed expansion would result in the diking and conversion of a total 30,000 acres of Bear River Bay into essentially sterile evaporation ponds. Diking and conversion impacts water quality because it will interfere with the natural ebb and flow of the lake, as well as the mixing of the lake's waters. Indeed, the 8,000 acre expansion proposal appears to essentially cut off water flows and access to and from Bear River Bay, particularly when water levels are low, as they currently are. In addition, as the Division of Wildlife Resources made plain, this area is important at low water levels because it creates a natural lake within the bay. IMC Kalium/DWR Memo, August 28, 1998 at 3. The effects of this expanded development on water quality, together with the effects of current development, will be significant. Specifically, circulation of fresh water, so critical to the Great Salt Lake ecosystem, will be impeded, especially during low water years. Since the open water of Willard Spur is an extremely valuable area for water birds the potential adverse impacts are certain and must be fully explored, based on flow patterns during low as well as high water years.

- Mineral salts extraction changes the chemistry of the waters of Great Salt Lake, at the very least, on a local level. These changes – including the effects of increased concentrations of some minerals and decreased concentrations of others – and the impacts these changes may have on the biota of the lake have never been analyzed. Changes to water chemistry, both due to current mineral extraction and due to the impacts of increased extraction should be addressed, particularly as these changes impact algae, brine flies, brine shrimp and water birds.
- Diking and the operation of solar evaporation ponds will increase evaporation from the lake with unknown impacts to water availability, water quality, wildlife habitat, wetlands and mud flats.
- The expansion proposal will greatly increase the ongoing shift of minerals between Gunnison Bay and Bear River Bay. A full understanding of these possible shifts in minerals and their impacts to the various bays should be developed, including whether the movement of water and minerals could concentrate mercury or selenium in the receiving waters or in the waters from which the minerals and water are being removed. These effects should be quantified and analyzed.
- Drought and low water will further exacerbate the water quality impacts of current and proposed operations. In addition, as the population of the Wasatch Front increases, there will be more demand for fresh water and less water reaching Great Salt Lake.
- Construction of the dikes will disturb lake bed sediments and stir up contaminants. In addition, the use of motors, motorized vehicles and other equipment as a result of the development could adversely impact water quality.
- Pumps, underwater canals, water intake points and discharge points all impact water quality, individually and cumulatively. Flushing of solar ponds impacts water quality by forcing into specific parts of the lake waters containing a high concentration of unspecified minerals.
- Removal of extremely high volumes of water from the open waters of the lake and sequestering them in essentially sterile evaporation ponds affects water quality and quantity available to the Great Salt Lake ecosystem. Moreover, increased evaporation of waters from the lake which will result from the construction of ponds, will also impact these values. This loss of water could lower lake levels thereby further concentrating pollutants, further restricting natural water flows as well as public access.

6. The Division and RDCC Must Gather and Analyze Sufficient Information to Establish Lease Stipulations and to Determine Whether Leasing Impairs Public Trust Values.

As established above, under the relevant statute, regulations, and provisions of the CMP and MLP, the Division, assisted and advised by the RDCC, and in some cases the Division of Wildlife Resources, has the obligation to:

- Safeguard navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality of and on Great Salt Lake and ensure any use of Great Salt Lake, including diking and conversion, do not "interfere" with the protection of these values.

- Undertake site-specific planning relative to the proposed expansion that, among other things, must evaluate the impacts of the diking and conversion project on public trust values. This in turn requires ensuring that:
    - leasing and development of the 22,088 acres in Clyman Bay does not interfere, either individually or cumulatively, with the protection of public trust values; and
    - development of the 8,000 acres in Bear River Bay does not interfere, either individually or cumulatively, with the protection of public trust values.

  This analysis must be sufficiently detailed and thorough to allow compliance with public trust obligations and must occur prior to any commitment by the State of Utah to allow this proposed development of the bed of Great Salt Lake.

At the very least, at this stage in the leasing process, the MLP requires that new leases on Great Salt Lake "address significant resource issues," including navigability, bonding and reclamation, requirements for cultural and biological surveys and "monitoring requirements to track and measure long term impacts of each operation on the lake's ecosystem." MLP at 45. At the same time, RDCC as well as the Great Salt Lake Technical Team are to be consulted and management decisions coordinated with these entities. MLP at 45. Analysis is necessary so that the Division and RDCC can establish sufficiently protective lease stipulations and restrictions prior to offering these sovereign lands for competitive leasing, or – if no stipulations could be sufficiently protective – to decide not to offer the lands for leasing.

Moreover, to the extent that offering the leases for competitive bid in any way binds the State of Utah to allowing any construction and conversion on the leased lands, we contend that action on the nominations must be postponed until the Division and RDCC members have sufficient information to fulfill their public trust obligations. This requires first determining the supposed value of the proposal to dike these lands and to convert them to giant evaporation ponds, as well as the costs to public trust resources that stem from that diking and conversion. Ultimately, to determine if the proposed mineral extraction proposal is appropriate, these harms and benefits must be balanced against the statutory requirement that the diking and conversion cannot impair navigation, fish and wildlife habitat, aquatic beauty, public recreation, or water quality in Great Salt Lake.

7. Additional Obligations with Regard to Existing Bear River Bay Leases

As set forth above, the Division of Wildlife Resources attaches particular value to Bear River Bay:

> the undiked areas of Bear River Bay have tremendous value to wildlife, specifically birds. Some of the values include: molting/brood rearing areas for Canada geese and ducks; a foraging area for fish eating birds such as pelicans, cormorants, western grebes, [and] great blues herons; [and a] horned grebe nesting colony.

IMC Kalium/DWR Memo, August 28, 1998 at 2. Indeed, with regard to some of the particular parcels slated for diking and conversion, the agency further underscored the "tremendous" importance of these lands:

> These lands were not included in the lease exchange but are valued by DWR for periods when lake level falls below 4200' in Bear River Bay. DWR is particularly interested in lands which are north and northwest of the existing dikes of IMC Kalium because of bulrush colonies in this area that are important to colony nesting birds and as forage for birds. Also, at lower lake levels, this is the low point of the channel and is important as an area where the water creates a natural "lake" within the bay.

Id. at 3.

As further exemplified by these statements, expansion of the existing 22,000 acres of diked evaporation ponds in Bear River Bay by an additional 8,000 acres will interfere with and seriously impair public trust values in the bay. As a result, the Division and the Division of Wildlife Resources are duty bound to prevent this development regardless of fact that leases have been issued for these parcels. This is particularly true because there has been no public trust analysis or evaluation conducted relative to these leases and no assurances in place that the public trust will be protected.

However, various opportunities exist to allow compliance with the public trust. First, as the MLP envisions that the Division will "**[e]valuate opportunities for trading existing leases with significant resource conflicts for the right to lease in areas with less conflict.**" MLP at 45 (emphasis added). In the Decision Document for the CMP, the Division states:

> Much of the public comment reflected a desire for a blanket ban on new dikes. There is no question about the adverse affects of some dikes, but other dikes serve public purposes as well as public uses protected under the Public Trust Doctrine. A blanket ban is inappropriate, but better evaluation of diking proposals is needed than has occurred in the past.

CMP at unnumbered 7.[7]

Thus, the MLP and the CMP require, at a minimum, an examination of diking and an evaluation of opportunities to exchange leased parcels in sensitive areas. Based on statements by the Division of Wildlife Resources, full compliance with these directives is mandated with regard to the Bear River Bay parcels.

At the same time, the relevant leases for the Bear River Bay parcels (21708-SV, 22782-SV, 24631-SV, and 25859-SV) each contain the following provision as Article I:

---

[7] See also CMP at 78 ("The general effect of dikes on lake dynamics is acknowledged. The policy will require a more specific assessment. Blanket denial of diking proposals is not appropriate because it would preclude construction of dikes in [Wildlife Management Areas], the sovereign land portion of [Bear River Migratory Bird Refuge], and existing mineral leases. Diking proposals in these areas will be subject to the policy."); CMP at 19 ("6.4 GSL diking policy. Given the increased appreciation for habitat-related beneficial effects of fluctuating lake levels, the objective is to ensure that on-site and off-site impacts will be taken into account when diking activity is planned.").

> This lease is granted subject to the laws of the State of Utah, existing regulations of the State Land Board and such reasonable operating regulations as may hereafter be promulgated by said board.

Thus, the Bear River Bay leases incorporate the State's constitutional, statutory and regulatory public trust obligations and the requirement that leasing and uses of the bed of Great Salt Lake not interfere with public trust values. Therefore, actions taken by the Division and other state agencies to ensure compliance with these statutory and regulatory mandates are expressly anticipated by the terms of the existing Bear River Bay leases. This in turn triggers the State's responsibility to acquire and analyze information sufficient to guarantee adherence to these requirements.

Finally, the Preamble of lease 25859-SV – the lease for the most northern Bear River Bay parcels – states as a term of the lease, the

> condition that at the end of each twenty (20) year period succeeding the first day of the year in which this lease is issued, such readjustment of terms and conditions may be made as the lessor may determine to be necessary in the interest of the State.

As the lease was issued in 1968, the State of Utah, as the lessor, is in a position to change the terms of this lease, effective January 1, 2008. Given the public trust obligations and the requirement that leasing and uses of the bed of Great Salt Lake not interfere with public trust values, such a change in terms and conditions is obligatory. This in turn implicates the need to acquire and analyze information sufficient to guarantee adherence to these requirements.

Thus, based on the relevant planning documents and existing leases, the Division and other state agencies have a chance to do what they are required to do – safeguard public trust values from any adverse impacts resulting from the development of the Bear River Bay parcels. We urge the Division and the other RDCC members to take full advantage of these opportunities.

8. Conclusion

Based on the above, we reiterate the need for the Division and the RDCC members to acquire and analyze the information they to ensure the proposed diking and conversion expansion will not harm the public trust values they are statutorily required to protect. We have set forth in detail the concerns, including those identified by the Division and other state agencies, that must be addressed in this public trust analysis. Until this information is gathered and examined, we ask that the proposal to lease the 23,088 acres in Clyman Bay be rejected.

At the same time, we urge the Division, the Division of Wildlife Resources and the other RDCC members to exercise their public trust authority to halt impending development of the Bear River Bay leases. At a minimum, prior to any development, sufficient information must be gathered and analyzed to assess impacts of the diking and conversion, both individually and cumulatively, on public trust values in this most sensitive and important area. Based on an

understanding informed by this review, we ask that the state agencies take the steps necessary to protect the public trust and safeguard Bear River Bay.

Only in these ways can the State of Utah ensure that the diking and conversion proposal does not interfere with and does not impair navigation, fish and wildlife habitat, aquatic beauty, public recreation, or water quality in Great Salt Lake.

JORO WALKER, Esq.
Director, Utah Office

cc: clients

Selected Great Salt Lake Waterbird Survey Information from 1998 through 2001

The table below provides high bird counts of over 1,000 during the GSL Water Bird Surveys from 1998 through 2001 at Bear River Refuge and the three main open water areas of Bear River Bay. These open water survey areas are south of the major west to east dike (D-Line) for Bear River Refuge. Immediately below is a brief description of these areas:

1. Bear River Migratory Bird Refuge. This area includes all impounded units and any appropriate habitat with established dike units within the Bear River Bird Refuge. Area is managed by U.S. Fish and Wildlife Service.

2. South Bear River. A large wetland complex south of the D-line in the Bear River Migratory Bird Refuge.

3. Bear River Bay. Open water area of the bay between the railroad causeway on the south and Bear River National Wildlife Refuge on the north. The area was surveyed from an airplane in east-west running transects spaced one mile apart. Observers counted birds on both sides of the plane out to 1/8 mile. To extrapolate to the whole area transect counts were multiplied by four. Public access.

4. Willard Spur. This area is bounded by emergent marsh or sandbar fringe on the north, the Willard Bay reservoir dike on the east, the North Harold Crane dike and emergent marsh on the south, and a line from the northwest corner of GSL Mineral north to the mud bar spit on the south.

Four Survey Sites at Bear River Bay – High Counts above 1,000 from the 1998-2001 GSL Bird Survey.
Taken from a review of 32 species.

Bear River Refuge	South Bear River	Bear River Bay	Willard Spur
10,449.4 Hectares	8,272.3 Hectares	16,467.3 Hectares	6,590.3 Hectares
1. AGWT – 52,584	1. AGWT – 39,723	1. WIPH – 33,638	1. AGWT – 5,099
2. WESA – 52,396	2. Gadwall – 37,483	2. AWPE – 26,230	2. LBDO – 4,382
3. WIPH – 26,541	3. Mallard – 36,119	3. NOPI – 17,669	3. WIPH – 4,210
4. AMAV – 23,240	4. AMAV - 18,975	4. CAGU – 13,740	4. AMCO – 3,995
5. NOPI – 18,840	5. NOPI – 15,209	5. LBDO – 12,535	5. AWPE – 3,938
6. Mallard – 18,838	6. WESA – 14,004	6. CAGO – 8,499	6. NOPI – 3,753
7. MAGO – 16,956	7. AMCO – 11,937	7. Redhead – 7,720	7. WFIB – 3,592
8. NOSH – 16,674	8. NOSH – 11,870	8. AGWT -7,492	8. AMAV – 3,547
9. WFIB – 16,006	9. FRGU – 9,575	9. NSHO – 6,927	9. NSHO – 2,377
10. BNST – 14,582	10. LBDO – 8,245	10. AMCO – 5,819	10. FRGU – 2,305
11. Gadwall – 13,450	11. AWPE 8,192	11. AMAV – 5,318	11. MAGO – 1,560
12. AMCO – 10,778	12. WFIB – 8,120	12. BNST – 4,986	12. RUDU – 1,493
13. FRGU – 9,903	13. BNST – 7,536	13. FRGU – 3,752	13. Redhead – 1,391
14. LBDO – 5,580	14. MAGO – 6,918	14. EARG – 3,213	14. EARG – 1,285
15. CITE – 5,145	15. WIPH – 5,572	15. WEGR – 3,024	15. Mallard – 1,161
16. EARG – 3,9332	16. EARG – 4,055	16. WFIB – 2,121	16. BNST – 1,038

Exhibit E – 1b

17. AWPE – 3,902	17. CAGU – 3,186	17. Gadwall – 1,580	
18. CAGU – 3,569	18. CITE – 1,797	18. RBGU – 1,556	
19. AMWI – 2,929	19. WEGR – 1,541	19. RUDU – 1,038	
20. CAGO – 2,874	20. RUDU – 1,168	20. RPHA – 1,027	
21. RUDU – 2,130			
22. Redhead – 1,647			
23. RPHA – 1,600			
24. LESC – 1,271			

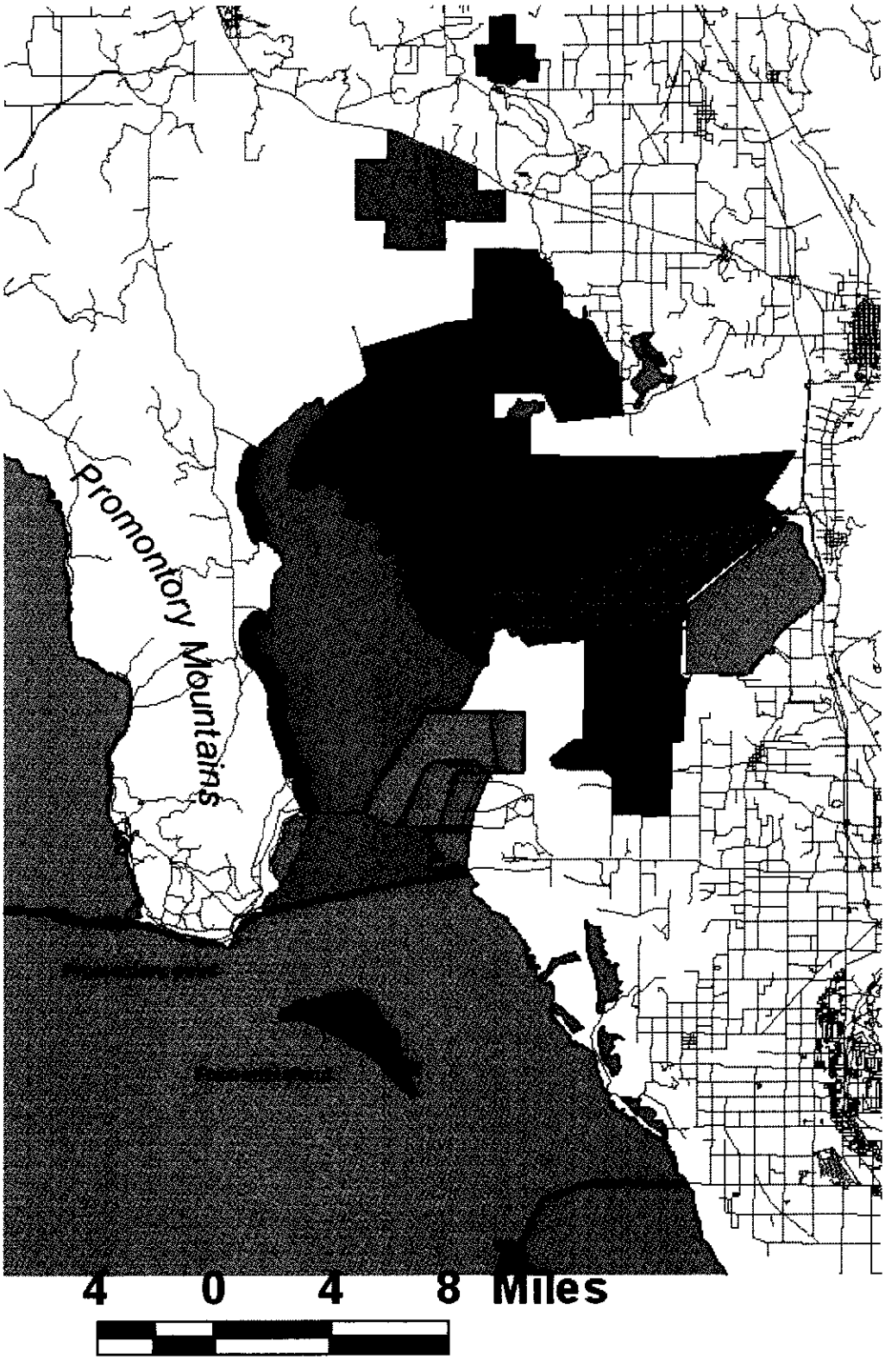
Also Note: High counts of Tundra Swans in winter months of 12,166 at Bear River Refuge and 2,334 at Willard Spur.

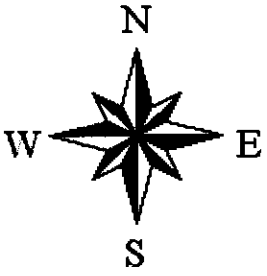
The following are a few more comments on the above data.

1. Below, in alphabetical order, are abbreviations for the bird species provided above: AGWT – American green-winged Teal, AMAV – American Avocet, AMCO – American Coot, AMWI – American Widgeon, AWPE – American White Pelican, BNST – Black-necked Stilt, CAGO – Canada Goose, CAGU – California Gull, CITE – Cinnamon Teal, EARG – Eared Grebe, FRGU – Franklin Gull, LESC – Lesser Scaup, LBDO – Long-billed Dowitcher, MAGO – Marbled Godwit, NOPI – Northern Pintail, NOSH – Northern Shoveler, RBGU – Ring-billed Gull, RPHA – Red-necked Phalarope, RUDU – Ruddy Duck, WEGR – Western Grebe, WFIB – White-faced Ibis, WIPH – Wilson's Phalarope, WESA – Western Sandpiper,
2. The high bird counts above are just one way of indicating the value of these four survey areas for numerous bird species.
3. The following are estimates of 1% of the World's population of just five of the species listed above: American White Pelican would be 1,800, Green Winged Teal would be 39,000, American Avocet would be 4,500, Long-billed Dowitcher would be 5,000, and Wilson's Phalarope would be 15,000. As you can see the high counts for these five species each exceeded 1% of the estimated world's population for these five species in most of the four survey areas above.

The following is a map of the survey areas for the Great Salt Lake Waterbird Survey and indicates the approximate boundaries for the survey areas above. (Notes: The Waterbird Survey data and survey areas above are not yet easily available to the public. The following map is titled Bear River Bay IBA. The areas above are included in the Bear River Bay Important Bird Area. The Important Bird Area program is an international, national and statewide effort that works to identify, monitor and conserve sites for birds. The program is voluntary and has no management oversight. At present land owner permission is obtained for inclusion in an IBA in Utah. More about the IBA program is available at www.audubon.org/bird/iba.)

Bear River Bay IBA





Survey areas are approximate

Roads
Willard Spur
Harold Crane South
Salt Creek WMA
Public Shooting Grounds WMA
Harold Crane WMA
Rainbow
East Promontory - S
East Promontory - N
Bear River Club
Bear River Bay
Bear River Refuge
South Bear River
Great Salt Lake
Fremont Island

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY, FIRE AND STATE LANDS

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Arthur W. DuFault
State Forester/Director

1594 West North Temple, Suite 3520
Box 145703
Salt Lake City, Utah 84114-5703
801-538-5555
801-533-4111 (Fax)

August 28, 1998

TO: John Kimball, Director
Division of Wildlife Resources

Arthur DuFault, Director/State Forester
Division of Forestry, Fire and State Lands

FROM: Max Reynolds, Vice President, Operations
Ken Warnick, Vice President, Administration
IMC Kalium Ogden Corporation

Clay Perschon
Division of Wildlife Resources

Edie Trimmer
Division of Forestry, Fire and State Lands

RE: Relinquishment of acreage leased by IMC Kalium in Bear River Bay in exchange for additional acreage in Clyman Bay

The purpose of this memorandum is to document the relinquishment of 6,917 acres leased for mineral extraction by IMC Kalium in Bear River Bay for the right to lease 6,716 acres in Clyman Bay without a competitive bid process (See attached map and amendments to IMC Kalium leases ML 19024-SV, ML 21708-SV, ML 22782-SV, ML 24631-SV, and ML 44607-SV). This exchange was pursued as a cooperative effort by representatives from IMC Kalium Ogden Corporation (IMC Kalium), Division of Wildlife Resources (DWR), and the Division of Forestry, Fire and State Lands (DFFSL) to further management goals on Great Salt Lake, benefit all parties and to explore possibilities of cooperation in good faith to accommodate mineral extraction and wildlife values on lake. This memorandum also gives an account of discussions at the request of IMC Kalium to act together to evaluate a proposal by IMC Kalium to dispose of waste salts by dredging or slurrying salts into Bear River Bay.

In January, 1996 Great Salt Lake Minerals (now IMC Kalium) filed a mineral lease application for 6,716 acres in Clyman Bay as part of their plans to expand production from their potash operations. At the time of application, lands were withdrawn from new leasing because DFFSL was preparing a mineral leasing plan for sovereign lands on Great Salt Lake. This plan was completed in June 1996, with management directions which include:

- withdraw lands within existing wildlife management areas and areas with more important wildlife, recreational and scenic values from new mineral leasing;
- evaluate opportunities for trading existing leases with significant resource conflicts for the right to lease in areas with less conflict.

To implement the Mineral Leasing Plan, DFFSL proposed an exchange of undeveloped lease acreage in Bear River Bay with acres in Clyman Bay to IMC Kalium in place of a competitive bidding process. DWR expressed interest in an exchange because the undiked areas of Bear River Bay have tremendous value to wildlife, specifically birds. Some of the values include: molting/brood rearing areas for Canada geese and ducks; a foraging area for fish eating birds such as pelicans, cormorants, western grebes, great blue herons; horned grebe nesting colony. In contrast, the acres proposed for lease in Clyman Bay have little wildlife value compared to those in Bear River Bay.

IMC Kalium, DFFSL, and the DWR met in February 1997 to discuss which leased areas DWR would like to see relinquished by IMC Kalium in exchange for the right to lease in Clyman Bay. During that meeting, Max Reynolds and Ken Warnick from IMC Kalium proposed that in addition to the discussion of the exchange of leased lands, the group also address, as part of the process, a proposal for increased waste salt disposal from IMC Kalium's concentration ponds. IMC Kalium disposes of 3-6.5 million tons of waste salt annually into the south end of Bear River Bay by flooding their ponds with fresh water per agreement with the state. The company hopes to dispose of an additional 3-4 million tons of salt by dredging or slurrying salt into Bear River Bay at a point further north. The decision of the group was to go ahead with discussion and to identify concerns and a process for evaluating the impacts in increased salt disposal. Several management directions in the mineral leasing plan support such a cooperative effort:

- implement data collection and analysis on movements of brines, extraction or deposition of salts, and return of salts to the lake system to monitor mineral salt resources in Great Salt Lake;
- establish indicators of change and parameters of tolerance to indicate when reevaluation of on-going practices should be made;
- explore opportunities for partnerships with government agencies, industry representatives, private parties, or organizations to enhance management of resources within Great Salt Lake meander line.

A "core" group comprised of Dave Butts from IMC Kalium, Clay Perschon from DWR, Wally Gwynn from Utah Geological Survey, Richard Denton from Division of Water Quality, Vickie Roy from Bear River Bay Migratory Bird Refuge, and Edie Trimmer from DFFSL was formed to gather baseline data prior to the start-up or trial run for disposal of waste salt by dredging. Brenda Landureth of the Great Salt Lake Planning Team has also attended recent meetings. This group continues to gather data on salinity, wind events, location and timing of bird populations in Bear River Bay.

The exchange of leased lands in Bear River Bay for lands in Clyman Bay was agreed to by

DFFSL, DWR and IMC Kalium in July 1998. DFFSL and DWR identified 6,917 acres of high habitat value sovereign lands leased by IMC Kalium in Townships 6 and 7 North, Range 5 West suitable for implementing the management directions in the Mineral Leasing Plan. IMC Kalium has consented to relinquish these lands in exchange for acres in Townships 6, 7 and 8 North, Range 10 and 11 West. Among the lands released by IMC Kalium are sovereign lands near Pokes Point. These lands are valuable to DWR because of fresh water ponds created by gravel pits above the surveyed meander on private lands owned by IMC Kalium.

DWR also identified lands of important wildlife value in Sections 16, 17, and 18, Township 7 North, Range 4 West. These lands were not included in the lease exchange but are valued by DWR for periods when lake level falls below 4200' in Bear River Bay. DWR is particularly interested in lands which are north and northwest of the existing dikes of IMC Kalium because of bulrush colonies in this area that are important to colony nesting birds and as forage for birds. Also, at lower lake levels, this is the low point of the channel and is important as an area where the water creates a natural "lake" within the bay. IMC Kalium values these same sections for possible pond expansion but believes that by increasing its pond size in Clyman Bay, these sections will probably never be needed. IMC Kalium, DWR and DFFSL are, as a result, now aware of areas of concern or potential resource conflicts that might arise in the future.

IMC Kalium, DWR and DFFSL will continue to work on data collection for key parameters in Bear River Bay and IMC Kalium's salt disposal project in cooperation with several other state and federal agencies. The intent of this effort is to evaluate what impacts any change in the method of disposal of waste salts could have on wildlife in Bear River Bay. This effort does not replace the regulatory authority of any state or federal agency but seeks to find mutually acceptable solutions which protect the Bear River Bay.

Enc.

cc: Dave Butts, IMC Kalium
Vickie Roy, U.S. Fish and Wildlife Service, Bear River Migratory Bird Refuge
Kathleen Clarke, Department of Natural Resources
Howard Rigtrup, Department of Natural Resources
Marty Ott, Department of Natural Resources
Sam Manes, Division of Wildlife Resources
Don Paul, Division of Wildlife Resources
Tom Aldrich, Division of Wildlife Resources
Richard Denton, Division of Water Quality
Wally Gwynn, Utah Geological Survey

APPLICATION NO. _____ DIVISION OF SOVEREIGN LAN_ & FORESTRY

Amendment to Mineral Lease c. 44607

FUNDING

SOV. . . . _____
UDOT. . . _____
DWR . . . _____
P&R . . . _____
Checked by _____

GREAT SALT LAKE MINERALS CORPORATION ("GSL")

NAME P.O. Box 1190

ADDRESS

Ogden | Utah | 84402

CITY | STATE | ZIPCODE

TELEPHONE NO. (801) 731-3100

Applicant hereby applies for a Mineral Lease on the following described tract of land situated in Box Elder County, State of Utah, for the purpose of mining the following mineral or minerals therefrom salts and other minerals extracted from the waters of the Great Salt Lake.
See attached Exhibit A for Legal Description of Land.

Subdivision	Section(s)	Township	Range	Mer	Acres
The Bed of the Great Salt Lake	7-8, 13-17	6 N	10 W	SL	2,101.76
(same as above)	3, 11, 12	6 N	11 W	SL	766.70
(same as above)	1, 11, 12, 14, 15, 22, 27, 34	7 N	11 W	SL	2,917.50
(same as above)	6, 7	7 N	10 W	SL	890.94
(same as above)	31	8 N	10 W	SL	38.96

Applicant offers to accept all the requirements of the Laws of the State of Utah governing the issuance of Mineral leases and operating thereunder. Applicant offers $1.00 per acre or fraction thereof per annum rental, and the royalties as established by the Director of the Administration, and deposits herewith $ 6,716.00 to pay rental for the first year of the lease, and $30.00 application fee ($40.00 for SLAs). If the applicant is a firm, association or corporation, the date when such became qualified to do business in the State of Utah was May 3, 1967

GREAT SALT LAKE MINERALS CORPORATION
by: Kenneth L. Warnick, Vice President

By _____
Kenneth L. Warnick, Vice President

State of Utah)
County of)

**The applicant listed above Vice President of GSL being first duly sworn, deposes and says that GSL is (~~are~~) the applicant(~~s~~) above named. (If Corporation, complete the following) The applicant is a corporation organized under the laws of the United States or of the State or territory of Delaware and that the above-signed is a duly qualified agent of said corporation; and that such association or corporation has fully complied with all the laws of the State of Utah relative to qualifications to do business within the State of Utah and is not in default under any such laws.

Subscribed and sworn to before me this 26th day of January, 19 96

REBECCA M. McNEELY
NOTARY PUBLIC • STATE of UTAH
705 NORTH 1000 WEST
OGDEN, UT 84404
COMM. EXP. 3-1-98

Rebecca M McNeely
Notary Public, residing at: Ogden Utah

My Commission Expires: 3-1-98

*Applications filed by an attorney-in-fact acting in behalf of the applicant shall not be accepted unless there is sufficient evidence on file with the Board of Trustees that the applicant authorized the attorney-in-fact to apply for and execute the lease in his behalf.

**Strike out parts not applicable.

EXHIBIT A

This legal description is for the attached application by Great Salt Lake Minerals Corporation for an amendment to Mineral Lease No. 44607 to expand the existing pond system now under operation. The requested land lies between the boundaries of Mineral Lease 44607 and the surveyed meander line.

Legal Description of Land:

The Bed of the Great Salt Lake in the Lands listed below:

Township 6 North, Range 10 West, SLB&M

section 13
section 14
section 15
section 16
section 17
section 8
section 7

Township 6 North, Range 11 West, SLB&M

section 3
section 11
section 12

Township 7 North, Range 11 West, SLB&M

section 34
section 27
section 22
section 15
section 14
section 11
section 12
section 1

Township 7 North, Range 10 West, SLB&M

section 6
section 7

Township 8 North, Range 10 West, SLB&M

section 31

containing a total of 6,715.86 acres, more or less, more particularly described as the following land in Box Elder County, Utah:

Township 6 North, Range 10 West, SLB&M

all of section 13 north of the surveyed meander line
all of section 14 north of the surveyed meander line
all of section 15 north of the RR track and surveyed meander line
all of section 16 north of the RR track and surveyed meander line
all of section 17 north of the RR track and surveyed meander line
all of section 8
all of section 7 north of the RR track and surveyed meander line

Township 6 North, Range 11 West, SLB&M

that portion of section 3 northeast of the surveyed meander line
all of section 11 northeast of the surveyed meander line and RR track
all of section 12 north of the surveyed meander line and RR track

Township 7 North, Range 11 West, SLB&M

all of section 34 east of the surveyed meander line
all of section 27 east of the surveyed meander line
all of section 22 east of the surveyed meander line
all of section 15 southeast of the surveyed meander line
all of section 14 southeast of the surveyed meander line
all of section 11 southeast of the surveyed meander line
all of section 12 southeast of the surveyed meander line
all of section 1 southeast of the surveyed meander line

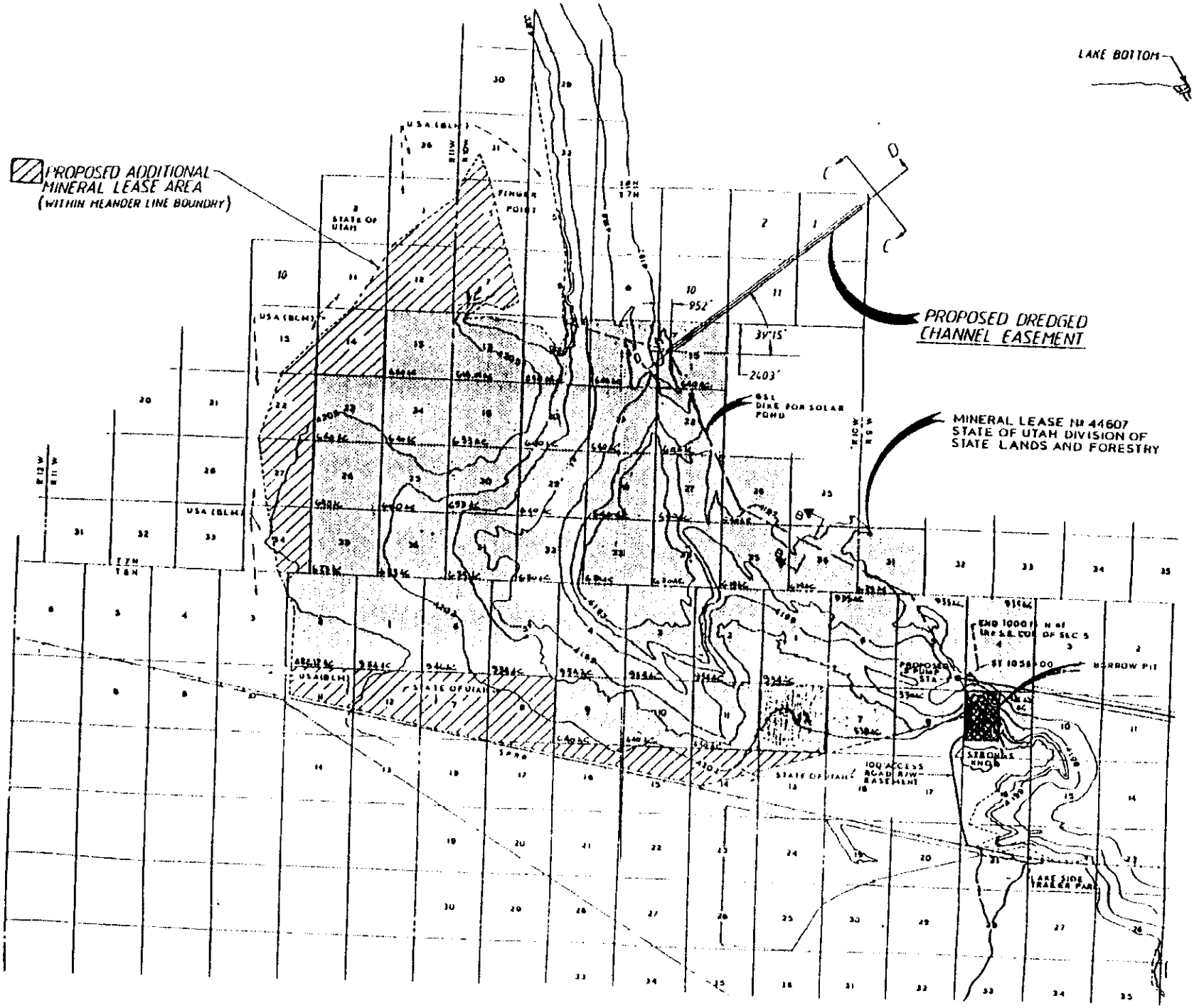
Township 7 North, Range 10 West, SLB&M

all of section 6 south or west of the surveyed meander line
all of section 7 west of the surveyed meander line

Township 8 North, Range 10 West, SLB&M

that portion of the south 1/4 section of section 31 south of the surveyed meander line

as shown on the attached map.


LAKE BOTTOM
PROPOSED ADDITIONAL MINERAL LEASE AREA (WITHIN MEANDER LINE BOUNDRY)
PROPOSED DREDGED CHANNEL EASEMENT
MINERAL LEASE № 44607 STATE OF UTAH DIVISION OF STATE LANDS AND FORESTRY
952'
39°15'
2603'
USA (BLM)
STATE OF UTAH
FINGER POINT
BORROW PIT
STRONGS KNOB
LAKE SIDE BREAKER PIER

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

In Reply Refer To
FWS/R6
ES/UT
7-FA-0186

May 1, 2007

Resource Development Coordinating Committee
Governor's Office of Planning and Budget
5110 State Office Building
Salt Lake City, Utah 84114

RE: Mineral Lease, near Clyman Bay (Gunnison Bay), Great Salt Lake

Dear Resource Development Coordinating Committee Members:

The U.S. Fish and Wildlife Service (USFWS) has reviewed your notice describing the Great Salt Lake Minerals Potassium Sulfate Expansion Project (Project) and its associated lease nomination. The nomination received by Division of Forestry, Fire, and State Lands (Division) and now being reviewed by the Resource Development Coordinating Committee (RDCC) requests the lease of 23,088 acres in the bed of the north arm (Gunnison Bay) of the Great Salt Lake (GSL). GSL Minerals' intent of leasing this land is to expand its solar evaporation operations for mineral extraction of brines from lake waters. The proposal involves the construction of dikes, feed channels, and pump stations similar to operations GSL Minerals currently has in Clyman Bay and in Bear River Bay. The Division and RDCC are currently seeking comments and stipulations appropriate for leasing this area.

The USFWS has been participating in development and review of the Project since December 2006 when an environmental permitting meeting and field trip was held with personnel from US Army Corps of Engineers (Corps), Utah Division of Wildlife Resources (UDWR), GSL Minerals and their consultant, BIO-WEST, Inc. During the meetings and field trip the USFWS discussed the resource issues and concerns that we believe need to be addressed in the environmental reviews for the Project. Based on our earlier comments and our review of the subject notice, we provide the following response for your consideration. Our comments are made pursuant to our authorities under the Endangered Species Act of 1973, as amended, the Migratory Bird Treaty Act, the Clean Water Act, and the Bald and Golden Eagle Protection Act. These comments reflect the potential for environmental impacts resulting from issuance of a new lease and future Project operations.

As you are aware, the lease request in Clyman Bay of 23,088 acres is part of a larger project that

proposes to add an additional 8,000 acres of evaporation ponds in Bear River Bay. Due to permitting requirements under the Clean Water Act, GSL Minerals has been working with the Corps and UDWR to assess effects of this expansion and to determine what mitigation may be necessary, if any. BIO-WEST, Inc. is currently assessing fish and wildlife data that are currently available via state and federal agencies, and they are also conducting bird use surveys from the shores of Clyman and Gunnison bays and by helicopter for Bear River Bay. Existing and new fish and wildlife use data will be analyzed in a NEPA document that will likely cover the entire project. Hence, a substantial amount of biological information will be compiled to assess the effects of the proposed Project. Because the evaporation pond expansion in Clyman, Gunnison, and Bear River bays has been designed and originally presented as a single project, USFWS requests that the entire Project be evaluated by RDCC and the Division to determine its effects on the GSL ecosystem prior to a lease being granted. The remainder of this correspondence details the resource areas that should be included in an evaluation.

Water Quality

During preliminary project meeting discussions, GSL Minerals agreed to conduct some limited water quality sampling to obtain information regarding the status of their current discharges to Bear River Bay. We have reviewed these data as presented in the Water Quality Monitoring Report for GSL Minerals (four page report from BIO-WEST, Inc.) and have the following comments. First, we appreciate GSL Minerals' efforts to collect and analyze water for mercury and selenium, which are two elements of concern for the GSL. Both mercury and selenium bioaccumulate in living organisms at much higher concentrations than measured in water, and results from recent scientific studies suggest elevated concentrations of mercury are present in GSL and may be taken up by waterfowl and other birds. Also, the State of Utah is developing a numeric water quality standard for selenium for the GSL. The concern with the flushing of brines from GSL Minerals' solar ponds is that mercury and selenium may be concentrated in the remaining brines and flushed back to Bear River Bay and GSL in a plume. Due to their interactions in the environment, these elements are readily incorporated and efficiently recycled in the food web so even a short-term pulse will have lasting affects. Based on the available data collected by BIO-WEST, Inc, selenium concentrations in water were below the freshwater water quality standard of 5 parts per billion; however, the detection limit for mercury (0.2 ppb) was sixteen times higher than the freshwater water quality standard of 0.012 ppb. Recent USGS sampling has found mercury in the South Arm to be as high as 0.1 ppb which is considered elevated, yet it is still half the detection limit here. Based on these observations, our recommendations for additional pre-lease sampling and long term monitoring include: 1) lowering the detection limit for mercury to the freshwater water quality standard of 0.012 ppb; 2) collecting samples within the first few days of flushing rather than the last few days; and 3) sampling effluent from ponds in Gunnison Bay if they are flushed. If unacceptably high levels of contaminants are detected, lease stipulation should specify avoidance, minimization, and mitigation measures with additional monitoring.

More salts are removed annually from the Great Salt Lake than are added by inflows and natural processes. Furthermore, some salts are harvested disproportionately to their concentration in the

lake and to their ability to be replenished. We recommend the long-term effects of this proposed Project, in conjunction with existing mineral operations throughout the lake (i.e., cumulative effects), be evaluated to assess the impact on salt concentrations and proportions of minerals in the lake and how changes in these might affect the lake and its biotic community (e.g., algae, brine shrimp, brine flies, and birds).

As we understand the proposed Project, flushing of the northern-most expanded solar evaporation ponds in Bear River Bay would occur directly into Bear River Bay near the Willard Spur. This would likely increase the salinity within the Bay and may adversely affect macrophytes, invertebrates and fish, and indirectly affect waterfowl and piscivorous birds by decreasing food availability. We recommend that prior to granting any new lease, the impact of adding these brines on the water quality in the Bay be modeled. The model should evaluate a range of scenarios with an emphasis on average and less than average runoff years and also evaluate the effects during multiple successive years of drought.

Migratory Birds

The Great Salt Lake provides a robust habitat for migratory birds that is unique in the intermountain area. Site specific data for avian usage of Gunnison Bay is fairly limited aside from information regarding the American white pelican and other birds that nest on the bay's islands (Dolphin, Cub, and Gunnison). The limited information that does exist indicates that Clyman Bay and the western shore of Gunnison Bay have the potential to provide foraging and nesting habitat for shorebirds including the snowy plover and the American avocet. In addition, Gunnison Island is one of the premier breeding colonies for American white pelican in North America. Because of this, in 1977 the Utah State Legislature passed the Pelican Management Act which directs the protection and management of GSL pelican populations and provides for the protection of Gunnison Island specifically for pelicans. Any environmental analysis should consider impacts to the breeding colony of pelicans on Gunnison Island and to other shorebirds along the shoreline and at springs and wetlands within Clyman and Gunnison bays. Furthermore, if lake levels rise like they did in the mid-1980's, the south arm of the GSL may become too fresh to support large populations of brine shrimp; subsequently, salinities in the north arm may decline to levels that would support large numbers of brine shrimp which would attract large numbers of birds. The analysis of evaporation pond expansion in Clyman and Gunnison bays should consider how migratory birds would be affected under this scenario.

Bear River Bay is highly important to waterbirds. The area is used by Canada geese for molting with more than 10,000 counted during some years in the late 1990's. The Bay provides aquatic habitat for a fishery similar to that of the Bear River and thus provides forage for several species of picivorous birds. The area is also important foraging and resting habitat for other waterfowl due to the fresh water, aquatic macrophytes, and other aquatic biota that exist in the bay.

Any lease granted for evaporation pond expansion should be based on an analysis that specifically evaluates Project effects to all migratory bird species, including those listed above. The analysis should provide a plan for long term monitoring of avian resources relative to

potential project impacts as well as a mitigation plan for potential project impacts to migratory birds. For example, it should evaluate noise and visual effects from project activities, habitat reduction and fragmentation, and whether habitat enhancement efforts may minimize displacement impacts for some species. Habitat impacts for species on the Service's 2002 list of Birds of Conservation Concern (BCC) and Partners in Flight Priority Species should be evaluated as part of the analysis. The BCC List identifies those migratory and non-migratory avian species that, without additional conservation actions, are likely to become candidates for listing under the ESA. To help meet responsibilities under Executive Order 13186, lease stipulation should include provisions which: recommend ground-disturbing activities occur outside critical breeding seasons for migratory birds; minimize temporary and long-term habitat losses; and require mitigation for unavoidable habitat losses, particularly at the field development stage. Mitigation should include the option for offsite, in-kind habitat compensation.

Habitat Fragmentation and Disturbance

The analysis should identify the amount, location, and timeframe of temporary disturbance as well as permanent facilities that could result from the proposed action. Displacement of wildlife across a large area during critical times, such as breeding, could prove a significant impact. If wildlife are displaced, it is likely that the area to which they move is inhabited by other wildlife or disturbed by other ongoing activities. Depending on the season and species, displacement could lead to nest abandonment, inter- and intra-specific competition, reproductive failure, and possible mortality. American white pelican are known to be highly susceptible to human related disturbance. In addition, the cumulative effects of other projects in the area may limit the availability of alternative sites for displaced wildlife.

Aquatic Habitat

Because the Great Salt Lake and the Bear River Bay inflow area contain significant wetlands and littoral and riparian areas, we recommend lease stipulations be developed to avoid any wetland losses in accordance with Section 404 of the Clean Water Act, Executive Order 11990 (wetland protection) and Executive Order 11988 (floodplain management) as well as the goal of "no net loss of wetlands." Riparian and littoral areas are some of the most productive wildlife habitat types in North America. Riparian and littoral vegetation plays an important role in protecting streams and lakes, reducing erosion and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. In view of their importance and relative scarcity, impacts to riparian and littoral areas should be avoided. Unavoidable impacts should be fully mitigated.

Any lease granted for evaporation pond expansion should be based on an analysis of the effects to fish and wildlife and their habitat which result from Project development and current mineral extraction activities on the lake including the operations of GSL Minerals Corporation and other operations such as US Magnesium and Morton Salt, etc. In particular this analysis should be done relative to impacts on algae and brine shrimp lakewide, and for aquatic macrophytes, fish and other aquatic biota in Bear River Bay.

Cumulative Impacts

The combined, incremental effects of human activity, referred to as cumulative impacts, have the potential to pose a serious threat to the GSL environment. While they may be insignificant individually, cumulative impacts accumulate over time and space, from one or more sources, and can result in the degradation of important resources. Because of this, cumulative impacts analysis should be done prior to any lease being granted. The cumulative impacts discussion should, at a minimum, include evaluations within the region of influence of the proposal for: potential for additional fish and wildlife impacts due to energy development including oil and gas in the GSL; impacts from increased habitat fragmentation; displacement of wildlife; and cumulative effects of lake level changes on project affected resources.

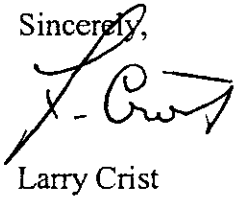
Conclusion

Based on the proceeding information, USFWS requests that the Clyman Bay lease be held in abeyance until RDCC and the Division can collect information necessary to properly analyze the effects of expanding GSL Minerals' evaporation ponds as well as how long-term operations in Clyman, Gunnison, and Bear River bays would affect fish and wildlife and their habitat.

Once full Project analysis has been completed, lease stipulations should include a declaration of baseline environmental conditions for fish and wildlife and their habitat including bird usage and aquatic biota present in Clyman, Gunnison, and Bear River Bays. Lease stipulations should further specify a monitoring plan that will assess short-term and long-term impacts associated with evaporation pond expansion and GSL Minerals operations. The monitoring plan should include impact thresholds that trigger corresponding mitigation measures. For example, impact thresholds may include a decrease in the nesting population of American white pelicans in Gunnison Bay or a decrease in the molting populations of Canada geese in Bear River Bay. Examples of corresponding mitigation measures include removal of nearby dikes, a reduction in operational activities during specific times of the year, and/or a change in flushing water discharge points (i.e. from Bear River Bay to the vicinity of Ogden Bay).

We appreciate the opportunity to provide these comments. In the future, as this project progresses, USFWS would appreciate information on upcoming field visits and interagency coordination. If you need further assistance, please contact Paul Abate, Ecologist, or Nathan Darnall, Ecologist (Environmental Contaminants) at the letterhead address or (801) 975-3330 ext. 130 or 137, respectively.

Sincerely,



Larry Crist
Utah Field Supervisor

cc: √Dave Grierson
Sovereign Lands Coordinator
Division of Forestry, Fire & State Lands
1594 West North Temple, Suite 3520
Salt Lake City, Utah 84116-3154

Dear Mr. Dave Grierson,

You may be aware that, while taking into account saline areas in the western US, the Great Salt Lake is the most essential North American site for aquatic bird communities. In addition, the lake, as a interior system, is perhaps the most valued single interior wetland site in North America.

Thus, if GSL Minerals is allowed to nearly double the size of its potassium sulfate production facility, species of birds such as California gulls, peregrine falcons, and snowy plovers would be in jeopardy.

Also receiving threat from GSL Minerals' proposal is the picturesque and natural beauty of Great Salt Lake. Myself and perhaps millions of other annual visitors and nature lovers would be seeing more development in an area that deserves a greater appreciation since it is the only large lake of its kind in North America.

Before I leave you, Mr. Grierson, I would like to remind you, once again, that the Division of Forestry, Fire and State Lands is required to,

by law, make certain that the navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality of Great Salt Lake is not to be infringed upon by any type of usage. This, I ask that you please undertake whatever action of which you are capable in order to ensure that the aforementioned natural and public usages of Great Salt Lake are not threatened.

Thank You for your time, Mr. Grierson.

Sincerely,

Jared Schwab

Mr. Jared Schwab
233 K St.
Rock Springs, WY 82901-5226

Executive Director's Message

In Consideration of the Public Trust Values of Great Salt Lake and the Statutory Responsibility of the Division of Forestry, Fire and State Lands to Protect Them.

"If you consider saline systems across the West, Great Salt Lake is the most important site in North America for aquatic bird communities. As an interior system, Great Salt Lake is arguably the most important single interior wetland site in North America. On the other hand, we have not treated the lake kindly. Out of the remaining functional saline lakes in the West, it is the most impacted by human activity."

Don Paul, Great Basin Bird Conservation Region Coordinator, Intermountain West Joint Venture.

By law, the Division of Forestry, Fire and State Lands is required to ensure that any use of Great Salt Lake does not interfere with navigation, fish and wildlife habitat, aquatic beauty, public recreation, and water quality on and in the lake. Moreover, protection of these values trumps any other use of sovereign lands and cannot be superseded in the name of economic development or payment to the State.

In April, FRIENDS and the National Audubon Society, with the assistance of Western Resource Advocates, submitted comments to the Division of Forestry, Fire and State Lands ("Division") and the Resource Development Coordination Committee ("RDCC") on a mineral lease nomination by GSL Minerals of 23,088 acres in Clyman Bay. GSL Minerals wants to expand the size of its facility to increase the production capacity of potassium sulfate, a fertilizer used for agriculture.

GSL Minerals has been operating on the shores of the lake since 1970. The existing facility is comprised of 43,000 acres of solar evaporation ponds, pump stations, dikes on both sides of the lake - in Gunnison Bay and Bear River Bay, and the 21 mile underwater canal, the Behren's Trench. This project would nearly double the size of its operations to 76,000 acres or 119 square miles. This means that GSL Minerals will have an area under development that is larger than Salt Lake City, which is 110 square miles. This development will encompass 13 percent of the total area of the lake when waters are low, and 7 percent of the lake when its levels are average.

We urged the Division and the RDCC to reject the mineral lease nomination until sufficient information has been acquired and analyzed so that the impacts of this massive diking, evaporation and extraction proposal could be fully understood. We set forth the Division's legal responsibilities in managing Great Salt Lake, both in regard to its accountability to the public trust and its site-specific planning obligations that are implicated by this nomination.

The lease includes shoreline playa, mudflat wetlands, and the waters of Great Salt Lake. Added to the already existing operations in this area, several miles of new dikes would be constructed, with supporting channels and pump stations. Among other things, this effectively moves the entire footprint of the operation to within two miles of Gunnison Island, a protected area for the third largest breeding colony of American White Pelicans in North America. To protect the nesting birds from boats and airplanes, there is a one mile buffer around the Island.

It is possible that construction for the expansion might disrupt nesting pelicans, California gulls and peregrine falcons, that also inhabit the island. Characteristically, dikes provide easy access for predators and humans to places that might be otherwise remote.

The Division of Wildlife Resources, which also has a public trust responsibility to oversee the wildlife resources of the State, submitted an extensive list of concerns about impacts from the project. Among those concerns is the possibility that juvenile pelicans might

Exhibit E – 4

confuse the proposed ponds with a potential forage site which could be life threatening, the elimination of natural springs that provide critical wildlife water resources, threats to the potential nesting habitat for snowy plovers - a state sensitive species, and threats to nesting birds on Dolphin Island.

Not included in the formal nomination but an integral part of the expansion and additional cause for concern is the proposed development of 8,000 acres in Bear River Bay. Bear River Bay is recognized as a Utah Important Bird Area by National Audubon. An area, which of all the important aquatic bird environments on the Lake, is the sweetest spot for diversity and numbers of aquatic birds during long-term average lake elevation periods; a veritable avian oasis. It is here where GSL Minerals intends to transfer the concentrated brine from the west side of the lake to an expanded system of solar ponds for further evaporation from May through September. And it is here where a profoundly unique exchange of water between the Willard Spur and Bear River Bay exists. This exchange creates a lens of fresh water that lies on top of the chemocline that exists on the floor of the bay. It is an extremely fragile situation and important system over time for birds.

"Bear River Bay is the freshest region and receives the largest volume of riverine inflow. Its near-surface salinity is similar to that of the Bear River. This system is bounded on the north and east by state, federal, and private wetlands; on the south by industry; and to the west by the Promontory Mountains. This bay is fresh enough to support a community of submergent hydrophytes including sago pondweed (Potamogeton pectinatus) and widgeon grass (Ruppia maritima). There are significant islands of emergent wetlands here, especially in the east part of the bay in the Willard Spur. . . . An ecological element of vital importance to pisciverus birds in this area is the fishery that persists when the lake elevation is higher than 4,200 feet (1,280.2 m) above sea level. The avian community at Willard Spur is exceptionally complex. With its species richness, diversity and overall abundance, this area continually provides one of the most magnificent displays of bird life on the lake. Although the smallest region on the lake, it makes an exceptional contribution to the lake's avian population."[1]

It would be naive to think that converting 33,000 acres of the bed of Great Salt Lake into giant evaporation ponds and dikes would not have impacts on the public trust values. Oh yes, and there are those oil and gas leases that are also being proposed for this area of the lake. Could this be the litmus test for the Division and RDCC to demonstrate how serious they are to protect the public trust resources?

There will be an opportunity for the public to participate in this process, so check our website for further details and updates. But in the meantime, perhaps this is a good time for all of us to do a little soul searching about our commitment to the lake and how serious we are about our public trust values. After all, it's not only about our future, but the future of this hemispherically important ecosystem.

In saline,

Lynn de Freitas

What You Can Do

Check our website: www.fogsl.org for updates and further details as they develop.

The Division of Forestry, Fire and State Lands invites public comment on this nomination until the Record of Decision is made. Call 801-538-5504 with any questions you have for the Division. Please send comments to:

Dave Grierson, Ecosystem Manager Coordinator
Utah Division of Forestry, Fire and State Lands
PO Box 145703
Salt Lake City, Utah 84114-5703
davegrierson@utah.gov

[1]Aldrich, T and Paul, D. 2002 Avian Ecology of Great Salt Lake. Great Salt Lake: An Overview of Change. (ed) J. W. Gwynn, Ph.D.

DUCKS UNLIMITED

WESTERN REGIONAL OFFICE
3074 Gold Canal Drive
Rancho Cordova, CA 95670-6116
(916) 852-2000 Fax (916) 852-2200
www.ducks.org

June 21, 2007

Mr. Dave Grierson
Sovereign Lands Coordinator
Division of Forestry, Fire, and State Lands
1594 West north Temple, Suite 3520
Salt Lake City, Utah 84116-3154

Dear Mr. Grierson,

Ducks Unlimited has followed the development of the Great Salt Lake Minerals Corporation's proposal to dike nearly 33,000 acres of state land within the Great Salt Lake for mineral extraction purposes and we have several concerns regarding this project. To date, we are aware of only minimal review of the potential environmental impacts that this proposed project will have on wetlands and waterbird habitats associated with the Great Salt Lake and believe a much more extensive investigation is warranted.

The Great Salt Lake is one of the most important areas for migratory waterfowl and other waterbirds in North America. In particular, the wetlands in Bear River Bay's Willard Spur support millions of waterfowl during fall migration. This valuable area is in close proximity to 8,000 acres of lake bed proposed for diking. We are concerned that this extensive set of new dikes will negatively affect the productive wetlands within the Willard Spur area, and consequently have far reaching effects on sensitive waterfowl and other waterbird populations.

We are specifically concerned about how the proposed project will affect surface hydrologic patterns (*e.g.*, water depths, inputs, outputs, flow patterns, etc.), surface water salinities, vegetation communities, and ultimately waterfowl and other waterbird use.

Wetlands in the Willard Spur are dependent on a hydrologic pattern that provides shallowly flooded areas with water depths, timing, and salinities supporting extensive sago pondweed (*Stuckenia spp.*) habitats. This area is likewise utilized by some of the largest concentrations of migrating waterfowl in the Pacific Flyway, particularly northern pintail. Northern pintails are identified in the North American Waterfowl Management Plan as a High Priority Species. Their North American population is down by 70% from 1950. The Great Salt Lake, and the Willard Spur in particular, play an important role in supporting nearly 25% of the current population of during the summer molt and both spring and fall migrations.

Ducks Unlimited is wrapping up an initial evaluation of the wetlands of the Great Salt Lake, including Willard Spur. Our initial data show that the Willard Spur contains some of the most productive waterfowl foraging habitat on the continent. We are currently in the process of

developing a habitat energetics model that will help estimate the carrying capacity of the Willard Spur and other Great Salt Lake wetland areas.

The Great Salt Lake, and the Willard Spur in particular, is essential in supporting millions of the continent's migratory waterfowl, particularly northern pintails. We urge you to take this information into consideration during your environmental review of the proposed Great Salt Lake Minerals Corporation proposed diking project. Alteration of the habitat quality and quantity within the Willard Spur could have negative effects on waterfowl populations not only locally, but continentally.

We would be happy to share with you the results of our findings when the final report is issued later this year. Additionally, we would also be happy to assist with any evaluation of the proposed project in regards to potential impacts on waterfowl and wetland habitats.

Thank you.

Sincerely,

Rudolph A. Rosen, Director
Western Regional Office